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PAPERS
IN
COLONIES AND TRADE.

No. I.

The LARGE GOLD MEDAL, the Premium offered, was presented to JOSIAS BOOKER, Esq., of Poplar Grove, near Liverpool; for his successful adoption of the Labour of Cattle and Machinery in aid of Slave Labour in the Colony of Demerara.

SIR,
*Poplar Grove, near Liverpool,
November 20, 1828.*

I HAVE the honour of transmitting to you a detailed account of the methods adopted on plantation Broom Hall for the purpose of diminishing human labour in the cultivation of cotton, by the substitution of agricultural machinery and the use of cattle.

My brother, Septimus Booker, who is the bearer of this, will leave with you a plan of the estates, which will shew the relative position of the places better than I can explain them. The cultivation on Broom Hall, Fairfield, Land of Promise, and Palmyra, is conducted by the people on Broom Hall; I have therefore included the whole under that name in the detail.

Should I have failed in making myself fully understood, I shall have great pleasure in giving any further explanations you may wish for.

I am, Sir, &c. &c.

A. AIKIN, Esq.
Secretary, &c. &c.

JOSIAS BOOKER.

This part of the colony of Demerara was originally laid out in lots of 400 yards broad, commencing at the sea-beach, and running in a straight line nearly from north to south. Some of the plantations consist of one lot, and others of two lots and upwards.

The depths usually granted for cultivation being 1500 rods, or 6000 yards; the land best adapted for cotton is most commonly within the first depth of 3000 yards. The whole coast of Dutch Guiana, of which Demerara is but a portion, is a regular flat; and the first operation of the planter on getting possession of a new lot, is to enclose it by a trench of from 8 to 12 feet wide, and 4 feet deep; the earth thrown up forms a regular bank round the plantation, for the purpose of excluding the Savannah water on the one hand, and the overflowing of the spring tides on the other.

Up the middle of each lot, and about thirty feet apart, are two trenches of similar dimensions to the one before named; the earth from both being thrown up together forms what is usually called the middle dam, which is used as the principal road to visit the different parts of the estate.

The before-mentioned trenches divide each lot into two equal parts of 200 yards broad, so that each part, or division, is enclosed by a trench of from 8 to 12 feet wide,

or wider sometimes, when the depth of the plantation is greater; of course, the more land you have to drain, the wider trenches will be required to let off as much water as possible during the ebb tide.

On each division of 200 yards, between the trenches, are transverse open drains of about 2 feet wide, and $1\frac{1}{2}$ feet deep; these drains are apart from each other 20 to 40 feet, according to the nature of the soil.

As efficient drainage is an object of the first consideration, the judicious planter takes care to have his sluices of sufficient dimensions to drain the land in time to prevent injury to the cultivation.

The nature of the land in this district, to which I shall confine my observations, is stiff, adhesive clay; and, from frequent hand-hoeings for a period of thirty years, has become incrusted and impervious to the rains,—the water lodging where the beds, or spaces between the transverse drains, are not sloped off from the middle.

The cotton-trees are in size and shape nearly similar to a luxuriant currant-bush, and thrive best on porous land, kept free from weeds, &c., with a trimming, or pruning, once a-year. The trees are raised from the seed, and are in full bearing from the second to the fourth year; they continue bearing to the seventh year and upwards, upon a favourable soil. I always found it most profitable to renew the cultivation every fifth year. It has been observed on cotton land generally, that the trees lose their size and vigour when the land has been some time in cultivation, and more particularly in a clayey, adhesive soil.

I have heard some of the old planters remark, that when this coast was first planted, the trees were so vigorous as to cover the ground at a distance from each other of

ten feet. Weeding once a year was then quite sufficient, and in some cases once in two years; the crops hardly ever failed of being most abundant; but now, the common practice is to plant at three and four feet apart, in consequence of which the trees are stunted, and frequent hand-hoeings, or weeding, are necessary to prevent the couch-grass from smothering the trees. Now, I apprehend this falling off does not proceed so much from the exhaustion of the land (nothing being taken from it but the cotton), as from an increased compactness, by repeated hoeings and tramplings, and the consequent difficulty which the roots have in penetrating the neighbouring earth in search of proper nourishment. Another disadvantage has arisen from the want of porousness in the land, namely, that the water lodges on the beds, if great attention is not paid to their shape. If they happen to be too much rounded off, the best part of the soil is washed into the small drains, and carried away through the sluice, of course to the injury of the land. It is no unusual occurrence to lose one-fourth of your stand of trees in a heavy wet season from bad drainage, together with little pools of standing water on the inequalities of the beds. In this state of things, it seemed absolutely necessary something should be done towards destroying the sour-grass, and giving to the land a perfect surface drainage, and at the same time loosening the texture of the soil;—ploughing, of course, appeared to be the only remedy, but that had frequently been attempted, and as often failed, and the idea had been given up, as a thing impracticable in a tropical climate. Again, it could not be performed with horses, because of the open drains, into which they were very liable to slip and get fast.

Never having seen oxen worked, I laboured under a

disadvantage: however, seeing with what great facility Mr. Tonge formed a team of oxen on a neighbouring estate in 1820, I commenced the use of cattle. Our first work was hauling timber, and dragging punts, or boats, to the buildings. We found great advantage in a draught-horse being put before them, until they got accustomed to the yoke. The cattle were yoked as in Devonshire, myself and assistant constantly superintending, until a young Creole named Douglas was competent to take the entire management of the cattle and plough. I am indebted to Mr. Lucas for the gift of the first plough we used; it was made near Lancaster, of the description commonly used in that neighbourhood: the ploughman was considerably eased by the use of the wheel.

The field selected for our first operation was one of about eight acres, in a low part of the estate, of an inferior soil, and notorious for a bad stand of cotton. Not having sufficient time to give it a regular deep ploughing before the season for planting was too far advanced, we commenced with making only one-bout ridges, or banks, parallel with the transverse drains, eight feet apart, the intervals remaining as before: both head-lands were similarly ridged across the beds, the furrows answering as small drains, through which the water was conveyed into the head-land furrows, and thence into the open drains. In a few days the land thus thrown up pulverises, then the cotton-seed is planted on the top of the ridges, six feet apart. The labour bestowed upon this field, and others similarly treated, will be shewn in the comparative statement of labour at the end of these notes. To the practical planter, it is an object of the first consideration to get his cotton-trees to cover the ground, and keep down the weeds,—a considerable saving is thereby effected in the

labour of weeding. The trees on this field, at five or six feet distance, covered the ground better than those which, according to the usual mode, are set at three or four feet distance. One of the advantages attending this method is, the young trees, being on the bank, a little elevated, and partially cleared, get the start of the grass and weeds, and are raised with less labour than is commonly bestowed upon young cotton in the old system, especially as no trees are lost by water standing in the hollow parts of the beds. The quantity of cotton picked from this field was equal to that gathered from the best land on the property, although the year was not what is usually called by the planters "a good cotton year."

In the year 1822 I had given to me the materials of an old mill, imported by the late Mr. Rutherford; this we formed into a cattle-mill, for turning ten of the gins in common use. Invalids, and children of from ten to fifteen years of age, after a little practice, would bring 75 lbs. of clean ginned cotton per day, which is one-third more than the general average of work done in that part of the country by the strongest men in the gangs, with hard labour. I have a letter, dated 24th September last, wherein my brother, who is my successor, states, they received from one gin 500 lbs. cotton per day. This gin I had made by Messrs. Fawcett and Co., of Liverpool, who have politely offered me a drawing to accompany this.

In the year 1823, as we began to feel the advantages of our cattle and machinery, more breadth of land became necessary to employ our means to advantage; accordingly, the abandoned plantation Fairfield was added to Broom Hall: this estate comprised a lot and a half, with a frontage of 600 yards; the cultivation had been neglected for a length of time, and the whole estate allowed to run into

high grass, or black sedge. By this time our people felt, and loudly expressed, the ease they derived from the use of the plough.

We continued extending our cultivation on Fairfield, chiefly on the principle of the one-bout ridges, until our cotton-fields were as extensive as when this property had 250 people upon it, without having given up more than 50 acres of the old cotton on Broom Hall.

As the advantages of the system were demonstrated, applications were made by persons both in Berbice and Demerara to be allowed to send negroes and cattle for instruction and training in ginning and ploughing. The estate was benefited by their gratuitous services for six, eight, and sometimes twelve months; and, as an encouragement to Douglas and his assistants, the owners of the parties so instructed paid twenty-two guilders* for each ploughman, and one guilder a-piece for the oxen fit for general work.

No plantains can be raised where this estate is situated, for want of suitable soil; and the supply of that article as provision for Broom Hall negroes was derived from one of the new locations for provision-ground above all the former settlements in Mahaica Creek, obtained in the year 1819. The front of this lot was four miles from the buildings on Broom Hall. The plantains had been brought from it overland on the negroes' heads once a fortnight, and, when the tide suited, in a punt drawn by men through a navigable canal. ‡In the first instance it occupied the whole gang half a day, and in the alternate week three men for three successive days. The whole of

* A guilder is one shilling and eight pence when the exchange is at 12 to the pound, being the par.

this work was afterwards performed on Saturdays by a team of oxen and two boys. I well recollect the satisfaction manifested amongst the people when the punt brought one of the first loads of plantains by the aid of cattle through the canal;—it happened at a time when the tides were low and very little water in the canal, and in some places actually nothing but soft mud. The punt had a load of 300 bunches of plantains, weighing from seven to nine tons. After the punt was once put in motion, it appeared to move with the same ease as when afloat. I asked a negro, named Cudjoe, who was present on that occasion, what he thought of it? and if he had seen any thing like it before? His answer was (translating negro jargon into English), “No, master, never; the longer I live, the more I see: these oxen are *our negroes now*; they do the hardest work at this time; and if master were to give them a regular allowance of provision every day, they deserve it certainly; and had all the men on the plantation been put to drag the punt, they would not have moved it.”

The saving of manual labour by the use of the cattle in various ways is immense. We not only brought the plantains, but timber, posts, spars, gin-roller wood, &c. from the Creek, and all other materials necessary for building and repairing buildings. The cattle were also employed in carting shells to the public road, which had heretofore been brought by the negroes upon their heads.

In the course of time, when our fields of cotton were extended, and well covered with what was considered a good stand of trees, we devoted a little more attention to a couple fields, measuring about twenty acres, by putting them under a regular course of tillage. One clean ploughing and harrowing in the dry season was sufficient to

pulverise the ground and destroy the weeds. While I remained in the country, which was above twelve months after, neither of those fields had been weeded, except just about the roots of the cotton-trees. We made use of a moulding plough, with a very broad-winged sock, to loosen the earth, and destroy the weeds in the intervals. A short time before I resigned charge of the estate, we used, for the same purpose, a cultivator set with coulter and duck-footed tines.

One of the fields above alluded to was nearly in the middle of Fairfield, on what we called Congo ground. The land was completely covered by the trees at seven feet apart, it yielded well, and was less affected than the other fields with drought. The other ten-acre field had been salted by tides running in and out for upwards of four months, for the purpose of destroying what is usually called the devil's-grass; it was afterwards ploughed, harrowed, and planted at four feet apart; the trees barely covered the ground at that distance, yet were very productive. The smallness of the trees I attributed to the land being so very salt.

From my own observation I have no hesitation in saying, that the horse-hoeing husbandry can be employed with great advantage in cleaning the cotton crops; and had I remained in the colony, I should have put the two estates in succession under tillage; and, I may say, I regretted leaving the colony before I had set this branch of improvement fairly on foot. However, what has been done by our feeble attempts at lessening manual labour is proved by the memorial and accompanying documents to Sir B. D'Urban, the governor of Demerara. It is also pleasant to reflect, it was not done by overworking the slaves, as there was only one estate on which the increase

of population was so great as that of Broom Hall at the last registration. The estate, whose births over deaths equalled Broom Hall, has, however, a gang of about 330 negroes, which is 148 more than that of Broom Hall.

The people on this property are comfortably supplied with food and clothing by their respectable owners;* and when the apportioned work of the day is over, it frequently occurs that the industrious have spare time to cultivate their plots of ground, the produce of which, if not given to their stock of poultry and pigs, is disposed of for some article of luxury, either in food or clothing. As an encouragement, we prepared the land for them by ploughing and harrowing.

I witnessed with pleasure the manners and habits of the negroes improve with the property. I had more reason to complain of their want of thought and consideration than deficiency of talent.

Before I left the colony, in May 1827, my example had been followed by several other planters both in Berbice and Demerara; there were then eight ginning-mills at work; and several estates, both cotton and sugar, had entered into a system of tillage, with great prospect of success. Five or six of the wood-cutters had introduced oxen into their establishments for hawling timber, thereby effecting an immense saving of manual labour: besides this, there are many others employed in drawing carts and punts, for transporting the produce of the estate to the places of embarkation, and bringing home the supplies.

The labour of the cattle, instead of being a cost to the

* John Bond, Esq. Lancaster; Abraham Rawlinson, Esq. Fakenham, Norfolk.

estate, has been a source of revenue : the cattle being worked while they are young, pay by their growth the interest of the purchase money and grazing. They are not worth more than six joes* a-head when first brought to labour, and after two years' work are readily sold at eight and nine joes each.

The cost of the ploughs, harrows, harness, &c. was more than covered by the earnings of our ginning-mill after our crop was ginned off.

*A Statement of Labour required for 10 acres Cotton,
two successive Years.*

<i>Old System.</i>	DAYS
Weeding and levelling the beds preparatory to planting . . .	60
Running the lines, and placing the line-sticks	4
Planting the seed $3\frac{1}{2}$ feet apart	23
Moulding, singling the plants, and supplying the vacant places with seed, 180 rows, six to each person for a day	30
Five weedings in two years, six persons to an acre	300
One pruning the second year	20
	<hr/> 437
<i>New System.</i>	
Running the lines, and placing the line-sticks	4
Ploughing 103 banks, with 6 oxen, 1 man, and 3 boys = $2\frac{1}{2}$ effective men, 6 days	15
Ploughing head-lands	3
Planting 103 banks	13
Weeding, moulding, and singling the plants	17
Three times weeding during two years, 5 persons to an acre each time	150
One pruning the second year	20
Balance in favour of this method	215
	<hr/> 437

* A joe is twenty-two guilders.

The difference of labour in favour of the new system is 215 days, which is annually a saving of $10\frac{3}{4}$ days for each acre in cultivation.

A Statement of the Labour expended on a 10-acre Field under Tillage for one Year only; the second Year it is supposed would be less.

	DAYS
One clean ploughing, with 1 man and 3 boys, which occupied them 15 days, the man and boys reckoned at $2\frac{1}{2}$ effective days	42 $\frac{1}{2}$
Harrowing ditto	7
Running the lines, and planting 7 feet apart	17
Weeding, singling, and moulding the rows twice	34
Once running the plough, with a broad-winged sock, through the intervals between the cotton (the instrument called the cultivator would occupy less time, and do the work more effectually)	10
	<hr/> 110 $\frac{1}{2}$

Ginning Cotton.

To gin a bale of cotton 300 lbs. Dutch weight with foot gins in this district did not take less on an average than 7 days, allowing for rests, the work being very hard	7
Cleaning, 6 persons to a bale	6
	<hr/> 13

According to the method now adopted, it requires 1 man and 4 boys to gin a bale and a half, there being little or no broken seed in it; 3 persons are sufficient to clean it, which will be for a bale and a half ginning and cleaning

6 $\frac{1}{2}$

Being a saving of $8\frac{3}{4}$ days' labour upon each bale of cotton, and very easy work to the people employed. Four well-grown cattle are sufficient to work two gin-heads, which would gin from 900 to 1000 lbs. per day.

JOSIAS BOOKER.

DEAR SIR, *Demerara, Nabaclis, May 3, 1827.*

I cannot permit you to leave the country without expressing my gratitude for the kindness and assistance I have experienced from you at the commencement of my ministerial labours. On arriving in this newly constituted parish, no place having been provided for the performance of Divine service, you kindly took me by the hand; and, though already affording to the Wesleyan missionaries, sometime established on this coast, a convenient building for preaching the Gospel to the negroes, granted a similar accommodation for myself, without which my labours for the present must have been confined to a small portion of my parish. It is impossible for me to regard your departure from this parish and colony without regret, since I had promised myself both comfort in your society and assistance in my duties, from your local knowledge and influence; but these disappointments are good for us, and are caused by Him whose ways are not our ways, who doeth all things well, who will have us put our trust in him alone, and who can raise up instruments for his work, where and when we least expect it.

Receive, then, the gratitude and thanks of a fellow-Christian for kindly aiding and encouraging him in commencing his ministry. I do not render you any praise: we are all unprofitable servants to Him from whom we

receive our all! and you must well know how high a privilege it is to serve in any way the cause of our Redeemer, or hold even the office of door-keeper in the house of our God; to whose safe keeping and merciful Providence committing you, and praying you may have a happy meeting with your friends at home,

I am, Sir, &c. &c.

LEONARD STRONG,
*Officiating Minister, St. Mary's,
Demerara.*

*George Town, Demerara,
May 5, 1827.*

DEAR SIR,

Having been proprietor of the cotton estate Prospect, in the neighbourhood of Broom Hall, for upwards of twenty years, I may be presumed to possess some experience in that branch of cultivation.

I well know the soil in the vicinity of what is called Little Courabund is, perhaps naturally, as unfertile as any on the coast of these colonies, and that it had for several years back been exhausted by long cultivation.

I have, therefore, witnessed with much gratification the great increase in your crops, which may be attributed to your system of management.

I am persuaded that its general adoption would produce the most beneficial effects, especially by the great saving of labour to the working classes.

Wishing you success and a prosperous voyage,

I am, Sir, &c. &c.

JOSIAS BOOKER, *Esq.*
Broom Hall.

J. D. GODDARD.